

# Graphics Solutions for Professionals

Matrox **Parhelia**

## Matrox Millennium P750

## Matrox Millennium P650

## User Guide

10818-301-0210

2005.02.28

[www.matrox.com/graphics](http://www.matrox.com/graphics)

**matrox**  
Graphics for Professionals

# Hardware installation

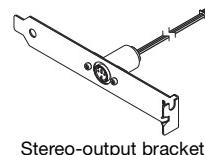
This section describes how to install your Matrox card. If your Matrox graphics card is already installed in your computer, skip to “[Standard \(ATX\) connection setup](#)”, page 6 or “[Low-profile connection setup](#)”, page 10. For information specific to your computer, like how to remove its cover, see your system manual.



**WARNING:** To avoid personal injury, turn off your computer, unplug it, and then wait for it to cool before you touch any of its internal parts. Also, static electricity can severely damage electronic parts. Before touching any electronic parts, drain static electricity from your body (for example, by touching the metal frame of your computer). When handling a card, carefully hold it by its edges and avoid touching its circuitry.



**Note:** If your Matrox product supports stereo output and you want to use a stereo-output bracket (provided with some Matrox products), you need to connect your stereo-output bracket to your graphics card. For more information, [see “Stereo output”](#), page 21.



Stereo-output bracket

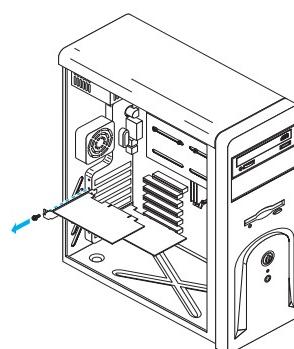


**Note:** Matrox low-profile graphics cards ship with standard (ATX) brackets compatible with most systems. If you have a low-profile system, you may need to change the standard bracket on your graphics card to a low-profile bracket. For more information, [see “Replacing brackets on a low-profile graphics card”](#), page 5.

## 1 Open your computer and remove your existing graphics card \*

If a graphics card *isn’t* already installed in your computer, skip to [step 2](#).

- Using **Add/Remove Programs** in the Windows **Control Panel**, remove any currently installed display drivers. Restart your computer for the changes to take effect.



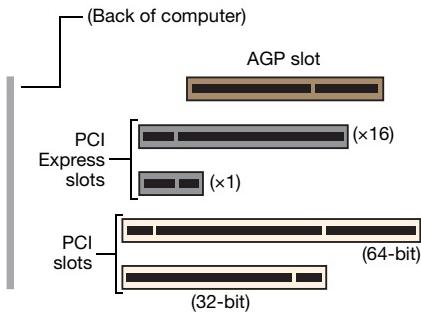
\* With multi-display mode, you may be able to use your existing graphics card. For Windows 2000/XP, see Windows 2000/XP online help under “Install additional monitors”.

After your computer restarts, you're prompted to install drivers for the new graphics hardware detected. Click **Cancel**.

- b** Turn off your computer and all peripherals such as your monitor or printer.
- c** Open the computer and remove your existing graphics card. (If graphics hardware is built into the motherboard of your computer, this graphics hardware should automatically disable itself after your Matrox card is installed. For more information, see your system manual.)

## 2 Choose an expansion slot

Most computers have different types of expansion slots. Choose an AGP, PCI, or PCI Express  $\times 16$  (PCIe) slot, depending on the type of Matrox card you have. If you have a PCI card, your card supports both 64-bit and 32-bit PCI slots. Your system manual should identify the location of each type of expansion slot in your computer.

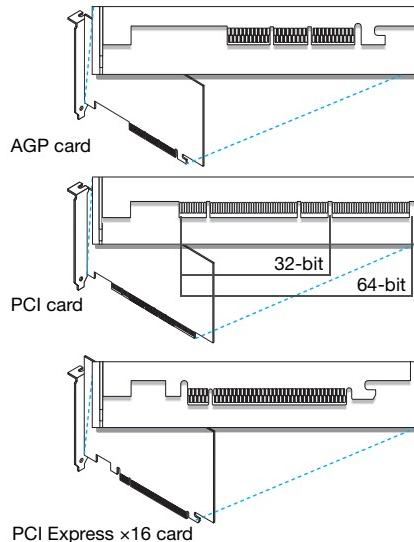


**Note:** If you're using a PCI graphics card in a PCI-X compatible slot, your choice of PCI slot may affect your card or system performance. For more information, see your computer manual.



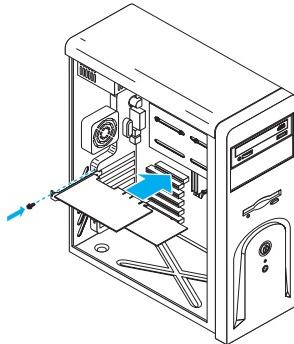
**WARNING:** Inserting your Matrox card into the wrong type of slot could damage your card, your computer, or both.

If you have a PCI card and the versions (32- or 64-bit) of your card and PCI expansion slot are different, only part of the card's edge connector (the part closest to the bracket) or expansion slot (the part closest to the back of the computer) should be used.



### 3 Insert your Matrox card

- a Position your Matrox card over the expansion slot you've chosen.
- b Push the card in firmly and evenly until it's fully seated in the slot.
- c Secure the bracket of your Matrox card to the computer frame. Your Matrox card is now installed.



Your Matrox card is now installed. *Before restarting your computer*, connect your monitor or monitors (see “Standard (ATX) connection setup”, page 6 or “Low-profile connection setup”, page 10). *After connecting*, restart your computer and install your Matrox software (see “Software setup”, page 12).

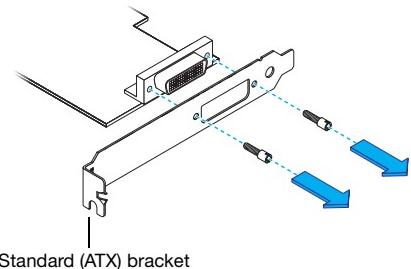


**WARNING:** If your computer doesn't restart after your graphics card is installed, turn off your computer to avoid damaging electronic parts. For troubleshooting information, see page 25.

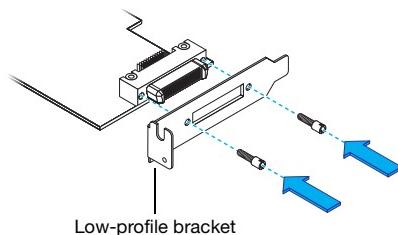
## Replacing brackets on a low-profile graphics card

Matrox low-profile graphics cards ship with standard (ATX) brackets compatible with most systems. The following explains how to change your standard bracket to a low-profile bracket.

- 1 Remove the standard bracket from your Matrox graphics card by removing the hexagonal nuts on either side of the monitor connector.



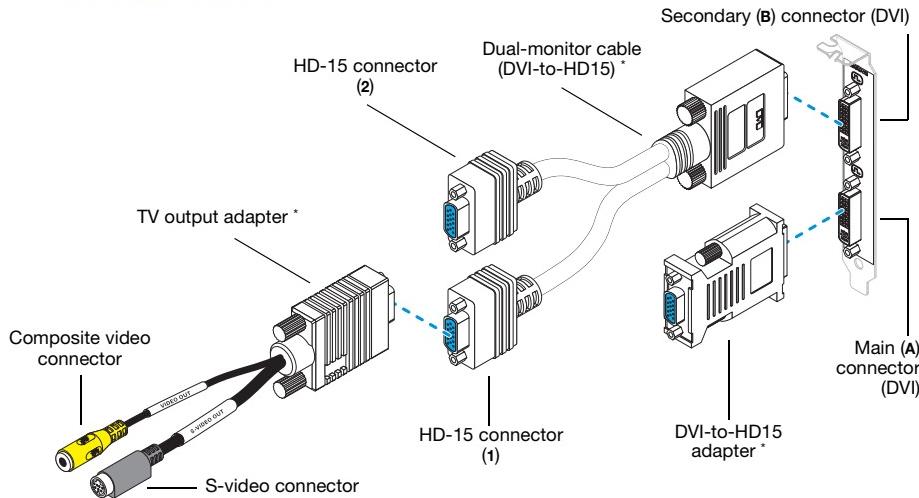
- 2 Attach and fasten the low-profile bracket with the two hexagonal nuts you just removed.



# Standard (ATX) connection setup

This section describes how to connect your monitors to a standard (ATX) Matrox graphics card.

## Connector overview



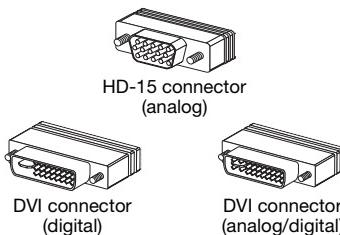
\* Matrox Millennium P650 products include 2 DVI-to-HD15 adapters, but no dual-monitor cable or TV output adapter. TV output adapters are sold separately (see <http://shopmatrox.com>).



**Note:** To connect a *digital* monitor (a monitor that uses digital input, usually a flat panel monitor) to your Matrox product, your monitor must have a DVI connector.

If you have an *analog* monitor (a monitor that uses analog input) with a DVI connector and you want to connect it to an HD-15 connector, you'll need a separate adapter. If this adapter isn't included with your monitor, contact your monitor vendor.

Some monitors with DVI connectors support both digital and analog input. If you're using one of these monitors with your Matrox product, make sure it's configured to use the correct type of input. For more information, see your monitor documentation.



## Step-by-step connection setup



**WARNING:** Don't change monitor connections while your computer is turned on. While your computer is turned on, it may be using monitor settings that are specific to the current monitor connections. *Some* devices may be permanently damaged if incorrect settings are used.



**Note:** Whenever you change your connection setup, make sure you're using the correct connectors and that all connectors are properly fastened.

Whenever you restart your computer, make sure your monitors are already turned on. Otherwise, the software may not be able to properly detect your monitors.

### 1 Connect the first monitor

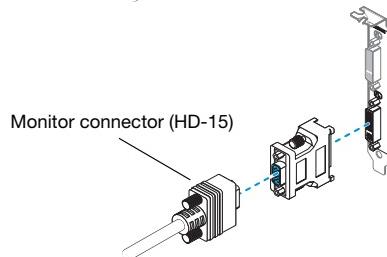
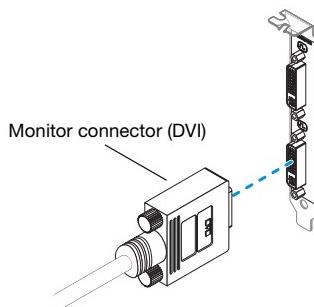
Connect your preferred monitor to the main connector (**A**) on your Matrox graphics card.

If your monitor has a DVI connector, connect it directly to the main connector of your graphics card.

If your monitor has an HD-15 connector, use the DVI-to-HD15 adapter included with your Matrox product to connect your monitor to the main connector.



**Note:** If you want to use 3 monitors at a time and one of these needs to use a DVI connector, that monitor must be connected to the main connector.

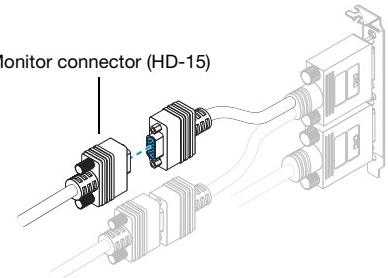
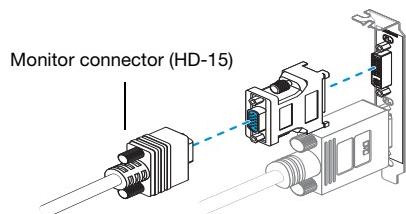
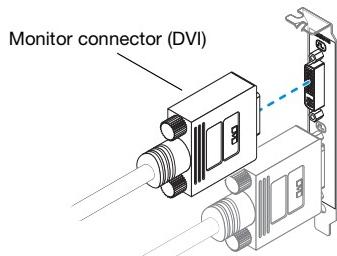


## 2 Connect the second monitor

If your second monitor uses a DVI connector, connect it directly to the secondary connector (**B**) of your graphics card.

If your second monitor uses an HD-15 connector, you can use a dual-monitor cable (included with certain Matrox products) or a DVI-to-HD15 adapter. To use 3 monitors at a time, a dual-monitor cable is required.

If you use a dual-monitor cable, connect it to the secondary connector on your graphics card, then connect your monitor to connector **1** on the dual-monitor cable. If you're going to connect the TV output adapter, connect your computer monitor to connector **2** instead.



## 3 Connect the third monitor

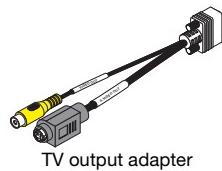
If you want to use 3 computer monitors at a time and your Matrox product supports it, your second and third monitors must use HD-15 connectors. Connect your third monitor to connector **2** on the dual-monitor cable.



**Note:** The left-to-right order of your displays isn't dependent on your connection setup and, through Matrox PowerDesk software, you can re-order your displays to match your Windows desktop. For more information, see Matrox PowerDesk help.

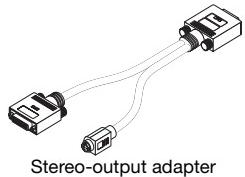


**Note:** To connect a TV or video recorder to your graphics card, you need a TV output adapter (included with certain Matrox products). The TV output adapter connects to connector **1** on your dual-monitor cable or to a DVI-to-HD15 adapter. For more information, see "TV output", page 14.





**Note:** If your Matrox product supports stereo output and you want to use a stereo-output adapter (provided with some Matrox products), you can connect the adapter to the main connector (**A**) of your graphics card. For more information, see “Stereo output”, page 21.



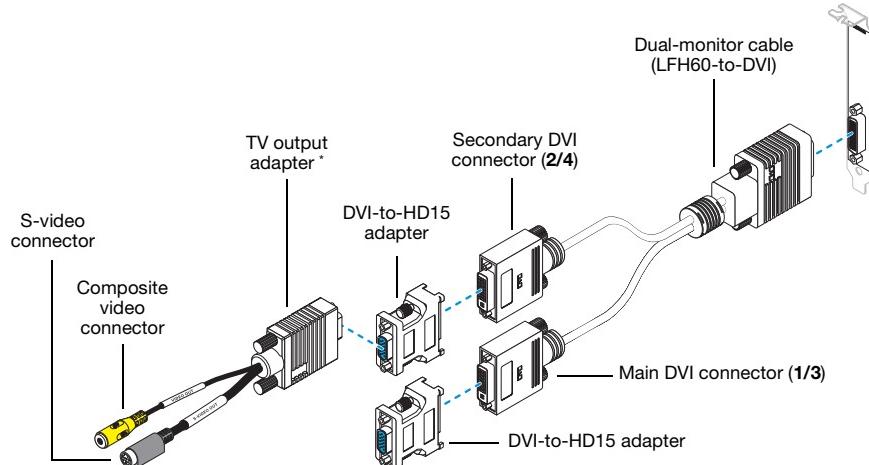
Stereo-output adapter

Your Matrox card is now installed. Restart your computer and install your Matrox software (see “Software setup”, page 13).

# Low-profile connection setup

This section describes how to connect your monitors to a low-profile Matrox graphics card.

## Connector overview



\* TV output adapters are sold separately (see <http://shopmatrox.com>).

## Step-by-step connection setup



**WARNING:** Don't change monitor connections while your computer is turned on. While your computer is turned on, it may be using monitor settings that are specific to the current monitor connections. *Some* devices may be permanently damaged if incorrect settings are used.



**Note:** Whenever you change your connection setup, make sure you're using the correct connectors and that all connectors are properly fastened.

Whenever you restart your computer, make sure your monitors are already turned on. Otherwise, the software may not be able to properly detect your monitors.

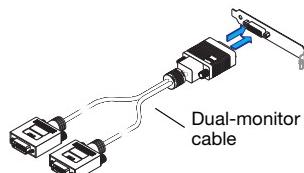
## Connecting a low-profile card

### 1 Attach the dual-monitor cable

Attach your Matrox dual-monitor cable to the connector on the bracket of your Matrox card. Make sure the connectors are properly fastened.

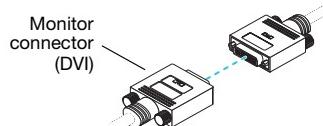


**WARNING:** To avoid damaging the LFH-60 connector on your dual-monitor cable or on your graphics card, carefully insert the connector on your dual-monitor cable as straight as possible into the connector on your graphics card. Specifically, inserting the connectors into each other at an angle is likely to bend and damage the pins on the connector of the dual-monitor cable.

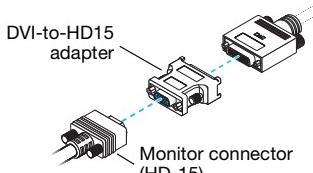


### 2 Connect the first monitor

Connect your preferred monitor to the main DVI connector (**1/3**) of your dual-monitor cable.



If your monitor has a DVI connector, connect it directly to the main DVI connector (**1/3**) of your dual-monitor cable.



If your monitor has an HD-15 connector, use the DVI-to-HD15 adapter included with your product to connect your monitor to the main connector. Make sure the connectors are properly fastened.

### 3 Connect the second monitor

Connect your second monitor to the secondary DVI connector (**2/4**) of your dual-monitor cable. Depending on the connector type of your monitor, connect the same way as in step 2.

Your Matrox card is now installed. Restart your computer and install your Matrox software ([see “Software setup”, page 12](#)).

# Software setup



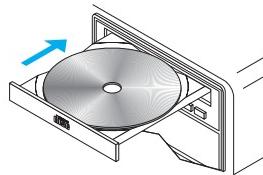
**Note:** This guide has references that are specific to the Matrox installation CD-ROM. If your Matrox product wasn't packaged by Matrox (for example, if it was included with your computer), your product may not include this CD-ROM.

If you don't have this CD-ROM, certain references in this guide may not reflect the software you have. For more information, see other software documentation provided by your system vendor.



This section describes how to install Matrox software for *Windows 2000/XP*.

You may need administrator rights to install certain software. For more information, see Windows documentation or contact your system administrator.



## 1 Install display driver

Windows detects new hardware when you restart. If Matrox display drivers haven't been previously installed, Windows prompts you to install a display driver. Follow the on-screen instructions. (The Matrox Windows 2000/XP display driver is in the *Win2kXP* folder of your Matrox installation CD-ROM.)

## 2 Install optional software

After your computer restarts, the setup program shows you a list of additional items you can install. Follow the on-screen instructions.

## 3 Configure your monitor settings

To take full advantage of your graphics card, make sure you have the correct monitor settings selected in Windows for *each* of your monitors:

- a Right-click your Windows desktop background, then click **Properties** → **Settings** → **Advanced** → **Monitor**. If you're using a multi-display desktop, select a display before clicking **Advanced**.  
b If “**Hide modes that this monitor cannot display**” is available, make sure it's enabled.  
Under **Screen refresh rate**, select the highest refresh rate listed.  
c Click **OK** → **OK**.

For more information on Windows monitor settings, see Windows documentation.



**WARNING:** If incorrect software monitor settings are applied, *some* monitors can be permanently damaged. For more information, see your monitor manual.

#### 4 Set up your display software

Use Matrox PowerDesk software to change certain display settings or access Matrox features. To access PowerDesk, double-click its icon (  ) on your Windows taskbar. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button (  ) on your Windows taskbar. For more information on how to use Matrox PowerDesk, see the online help.

# TV output

If your Matrox product supports TV output, you can use the TV output adapter to connect a video recorder or a TV to your Matrox graphics card. You can use the TV output adapter to connect a video recorder or a TV to your Matrox graphics card. This adapter is only included with certain Matrox products. To purchase a Matrox TV output adapter for your product, see the Matrox online store (<http://shopmatrox.com>).



This section describes how to use the *TV output* feature.



**Note:** TV output isn't supported with full-screen DOS display modes (for example, the information you see before Windows starts) or with standard VGA mode (for example, when you restart Windows in “safe mode”). Older programs may use these display modes. While one of these display modes is in use, your TV displays nothing (black).

## Connection setup

### 1 Turn off computer



**Windows 2000/XP –** To shut down your computer, click **Start** → **Shut Down** → **Shut down** → **OK**, then turn off your computer.

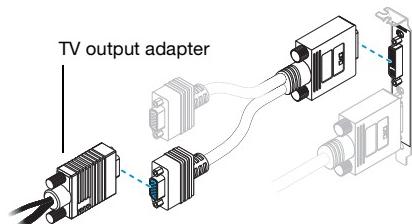


**WARNING:** Don't change monitor connections while your computer is turned on. While your computer is turned on, it may be using monitor settings that are specific to the current monitor connections.

If a display device (monitor, TV, or video recorder) is connected while your computer is using settings intended for another display device, the display of the new device may be garbled or unusable. *Some* devices may be permanently damaged if incorrect settings are used.

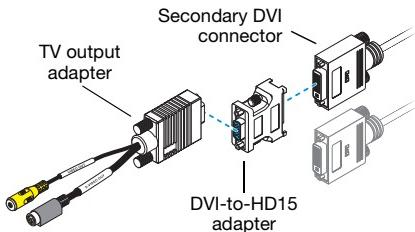
### 2 Attach TV adapter

**Standard (ATX) card –** Connect the TV output adapter to connector **1** on your dual-monitor cable.



If you're only using one computer monitor and a TV, you can use a DVI-to-HD15 adapter to connect the TV output adapter to the secondary (**B**) connector on your Matrox card.

**Low-profile card** – Use a DVI-to-HD15 adapter to connect the TV output adapter to the secondary DVI connector on your dual-monitor cable.

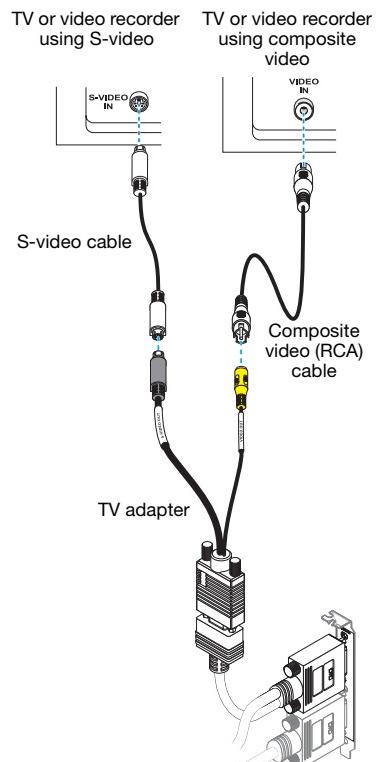


### 3 Connect video output

To connect to a TV or a video recorder, you'll need a composite video (RCA) or S-video cable.

If your video device (a TV or a video recorder) didn't come with one of these cables, these types of cable are available at most electronics stores. The type of cable you use depends on what your video device supports. Many video devices support composite video connections, and some higher-quality video devices support S-video connections.

- a Attach one end of your composite video or S-video cable to the appropriate connector on your TV adapter.
- b Attach the other end to the **VIDEO IN\*** connector on your TV<sup>†</sup> or video recorder.
- c Before viewing or recording video output directly from your computer, make sure your TV or video recorder is set up to use *line* input. For example, if your TV has a **TV/VIDEO** switch, set it to **VIDEO**; or if your video recorder has a **TUNER/LINE** switch, set it to **LINE**.



(Note: Using the Matrox composite video *and* S-video connectors at the same time is optional.)

\* The labels on your devices may not be consistent with what's in this guide. Different manufacturers sometimes use different labels for the same type of controls and connectors. For example, the **VIDEO IN** connector on your TV may be labeled **VIDEO 1** (or **VIDEO 2**). To match labels, see the documentation for your video devices.

† If your TV only has an antenna or cable TV connector, you can use an *RF modulator* to connect it to your Matrox card. RF modulators are available at most electronics stores.

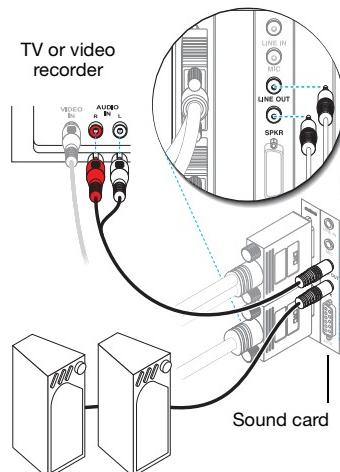
Optionally, if you use the composite video **and** S-video connectors on your Matrox TV adapter, you can directly connect two different video devices at the same time.

To view **and** record output from the same Matrox video connector, you can connect it to a video recorder and connect the video recorder to a TV. For more information, see your video recorder and TV manuals.

#### 4 Connect audio output

Typically, the sound output from a computer comes from speakers connected to your sound card. If you prefer, you can hear or record the sound output from your computer using the same TV or video recorder you connect to your graphics card. To do this, you need an audio cable with a stereo jack on one end and two RCA connectors on the other end. If you don't have this type of cable, you can buy one at most consumer electronics stores.

- a Plug the stereo-jack end of the audio cable into the **LINE OUT\*** (立体声) connector on your sound card.
- b Plug the other end of the cable into the left (**L**) and right (**R**) **AUDIO IN** connectors of your video device. For more information, see your sound card manual.



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\* If your computer has no audio **LINE OUT** connector, you can use its **SPKR** (speaker) connector instead. In this case, all your computer sound output goes to the video device you connected to.

## Software setup

If a TV or video recorder is connected to your Matrox product, you can use TV output mode to view or record your display on your TV or video recorder. (To connect video devices to your computer, see page 14.)

TV settings have lower resolutions and refresh rates than typical computer monitor settings. Lower refresh rates may result in more noticeable flicker.



**Note:** Two TV standards are supported for TV output. The NTSC standard is used in North America and Japan, among other places. The PAL standard is used in most of Western Europe and in China, among other places.

If an incorrect TV standard is selected in Matrox software, the output from your computer may not appear or record properly on your TV or your video recorder. To find out what standard your TV or video recorder supports, see its documentation.



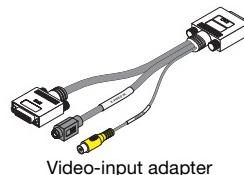
### Windows 2000/XP –

- To add a TV to your Windows desktop or as a feature display, access **Multi-Display Setup** in your Matrox PowerDesk software.
- You can also use a TV (or video recorder) as your secondary display:
  - With *Matrox Clone* – Access **Multi-Display Setup** in your Matrox PowerDesk software and select **2 displays, Clone mode**.
  - With *Multi-Display Zoom* – Access **Matrox Zoom** in your Matrox PowerDesk software and select **Multi-Display Zoom**.
  - With *PureVideo/DVDMax* – Access **Video Playback Settings** in your Matrox PowerDesk software and enable **Use PureVideo/DVDMax**.
- To select the TV standard (NTSC or PAL) used for TV output:
  - 1 Access **Monitor Adjustments** in your Matrox PowerDesk software.
  - 2 Click the TV in the left part of the page, then click **Select a TV output standard**.
  - 3 Select **NTSC** or **PAL** according to the standard used by your TV or video recorder.
  - 4 Click **OK**.
- To adjust TV settings, access **Monitor Adjustments** and **Video Playback Settings** in your Matrox PowerDesk software.

To access PowerDesk, double-click its icon (m) on your Windows taskbar. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button (e) on your Windows taskbar. For more information on how to use Matrox PowerDesk, see the online help.

# Video input

If your Matrox product supports video-input, you can use the video input adapter to capture video with your graphics card. This section describes how to use the video-input feature.



**Note:** Because the video-input and stereo-output adapters use the same connector, you can only use one of these adapters at a time. For more information on stereo output, see “[Stereo output](#)”, page 21.

## Connection setup

### 1 Turn off your computer



**W**indows 2000/XP – To shut down your computer, click **Start** → **Shut Down** → **Shut down** → **OK**, then turn off your computer.

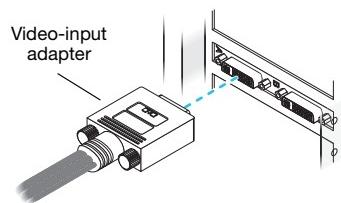


**WARNING:** Don’t change monitor connections while your computer is turned on. While your computer is turned on, it may be using monitor settings that are specific to the current monitor connections.

If a display device (monitor, TV, or video recorder) is connected while your computer is using settings intended for another display device, the display of the new device may be garbled or unusable. *Some* devices may be permanently damaged if incorrect settings are used.

### 2 Connect your video-input adapter

Connect the video-input adapter to the main connector (**A**) on your graphics card. If a monitor is already connected to the main connector, disconnect that monitor and, if present, the DVI-to-HD15 adapter.



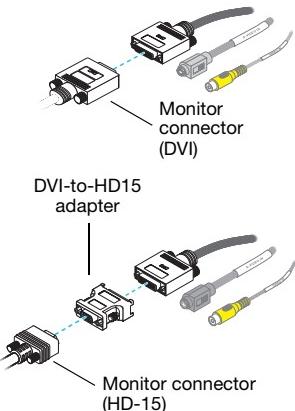
### 3 Connect your monitor

Connect your preferred monitor to the main connector (DVI) on your video-input adapter.

If your monitor has a DVI connector, connect it directly to the main connector (DVI) on your adapter.

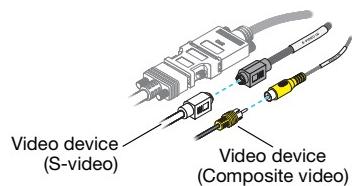
If your monitor has an HD-15 connector, use the DVI-to-HD15 adapter included with your Matrox product to connect your monitor to the main connector.

Make sure the connectors are firmly in place.



### 4 Connect video input

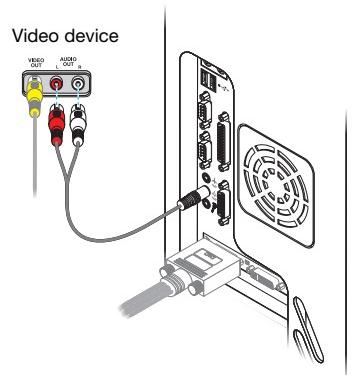
Connect the video output of your video device (for example, your video camera) to the composite video (**VIDEO IN**) or S-video (**S-VIDEO IN**) connector on your video-input adapter.



### 5 Connect audio input

To connect the audio output of your video device to your computer, make sure you have a cable that corresponds to the connectors on your audio hardware. Typically, video devices use two RCA connectors and audio hardware uses stereo jacks. These cables and adapters are available at most electronics stores.

Connect the audio output of your video device to the **LINE IN** (↔) or **MICROPHONE** (→) connector on your computer audio hardware. If your video device has only one audio connector, use the left audio connector on the cable.



**Note:** The labels on your devices may not be consistent with what's in this guide. Different manufacturers sometimes use different labels for the same type of controls and connectors. For example, the **VIDEO IN** connector on your TV may be labeled **VIDEO 1** (or **VIDEO 2**). To match labels, see the documentation for your video devices.

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## Software setup

To capture video with your Matrox Parhelia product, your video-capture software must support WDM (Windows Driver Module) drivers and you must have the Matrox WDM display driver package installed on your system. For the latest Matrox WDM display driver package, see the Matrox Web site ([www.matrox.com/mga/workstation/video/support/drivers/home.cfm](http://www.matrox.com/mga/workstation/video/support/drivers/home.cfm)).

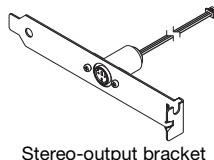
To capture video with your Matrox product, select **Matrox Video Capture** as your video source in your video editing software.

# Stereo output

You can use stereo output with OpenGL software that takes advantage of this feature. Matrox products that support stereo output ship with a stereo-output bracket, a stereo-output adapter, or both. To use stereo output, you need to install the stereo-output bracket and connect your stereo-output device to that bracket, or you can connect your stereo-output device to the stereo-output adapter.

## Connecting your stereo-output bracket

This section describes how to install and use the stereo-output bracket included with your Matrox product.



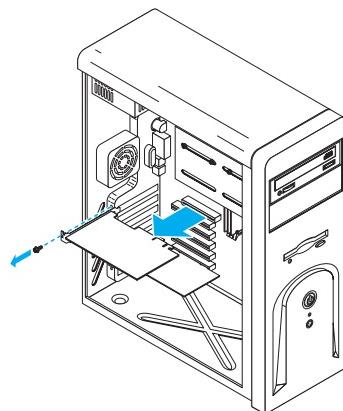
Stereo-output bracket



**WARNING:** To avoid personal injury, turn off your computer, unplug it, and then wait for it to cool before you touch any of its internal parts. Also, static electricity can severely damage electronic parts. Before touching any electronic parts, drain static electricity from your body (for example, by touching the metal frame of your computer). When handling a card, carefully hold it by its edges and avoid touching its circuitry.

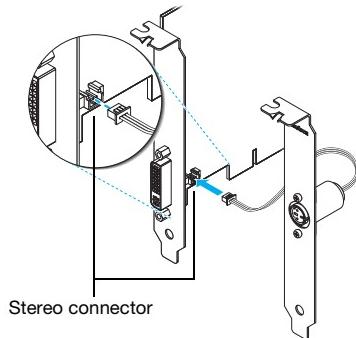
### 1 Remove your graphics card

Turn off your computer and all peripherals such as your monitor or printer. Open your computer and remove your existing graphics card.



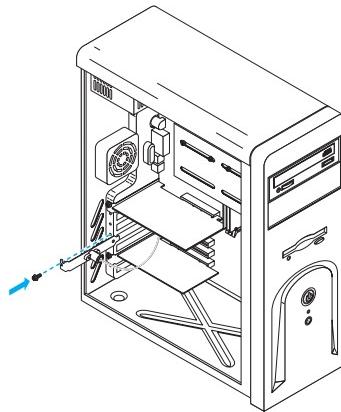
## 2 Connect the bracket to your graphics card

Connect your stereo-output bracket to the stereo-output connector on your graphics card. The stereo-output connector is a small white connector near the main connector (A) of your graphics card.



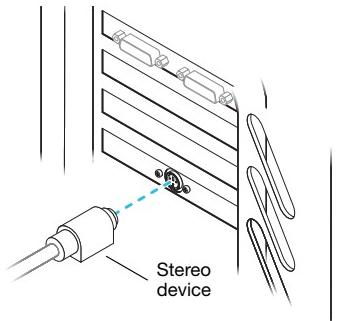
## 3 Insert your Matrox card and stereo-output bracket

- a Position your Matrox card over its expansion slot.
- b Push the card in firmly and evenly until it's fully seated in the slot.
- c Secure the bracket of your Matrox card to the computer frame.
- d Select a slot for your stereo-output bracket. Replace the cover of that slot with the stereo-output bracket.



## 4 Connect your stereo device

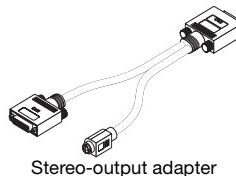
Connect your stereo device (for example, your 3D glasses) to the stereo connector (mini DIN, 3 pins) on your stereo-output bracket.



To connect your monitors, see “Standard (ATX) connection setup”, page 6. After connecting your devices, restart your computer.

## Connecting your stereo-output adapter

This section describes how to use the stereo-output adapter with your Matrox product. To use the stereo-output bracket, see “Connecting your stereo-output bracket”, page 21.



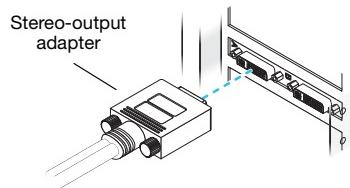
**WARNING:** Don't change monitor connections while your computer is turned on. While your computer is turned on, it may be using monitor settings that are specific to the current monitor connections. *Some* devices may be permanently damaged if incorrect settings are used.



**Note:** Because the video-input and stereo-output adapters use the same connector, you can only use one of these adapters at a time. For more information on video input, see “Video input”, page 18.

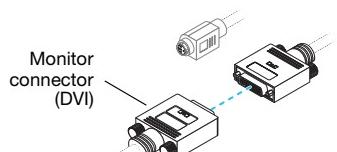
### 1 Connect your stereo-output adapter

Connect the stereo-output adapter to the main connector (**A**) on your graphics card. If a monitor is already connected to the main connector, disconnect that monitor and, if present, the DVI-to-HD15 adapter.

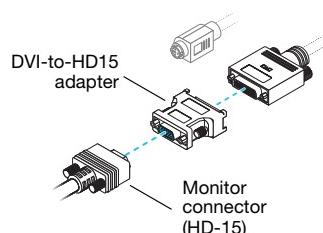


### 2 Connect your monitor

Connect your preferred monitor to the main connector (DVI) on your stereo-output adapter.



If your monitor has a DVI connector, connect it directly to the main connector (DVI) on your adapter.

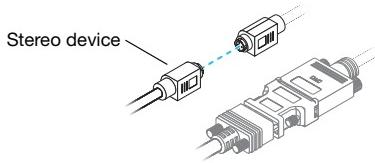


If your monitor has an HD-15 connector, use the DVI-to-HD15 adapter included with your Matrox product to connect your monitor to the main connector.

Make sure the connectors are firmly in place.

### 3 Connect your stereo device

Connect your stereo device (for example, your 3D glasses) to the stereo connector (mini DIN, 3 pins) on your stereo-output adapter.



After connecting your devices, restart your computer.

---

## Software setup

**W**indows 2000/XP – To enable stereo-output support for OpenGL software, access the Matrox PowerDesk-HF main interface. Click **Quality and Performance Settings**, then make sure **Allow stereo-output** is enabled.

To access PowerDesk, double-click its icon (m) on your Windows taskbar. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button (C) on your Windows taskbar. For more information on how to use Matrox PowerDesk, see the online help.

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# Troubleshooting

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## Basic procedures

This section explains basic procedures that are referred to by some troubleshooting items in this guide.

### W Restarting in VGA mode

Windows 2000/XP – What follows is information on how to restart your computer in *VGA mode*.

- 1 Click **Start** → **Shut Down** → **Restart** → **OK\*** to restart your computer. (\* Depending on your version and configuration of Windows, this part of the step may not be necessary.)  
If your primary monitor is unusable, see your system manual for information on how to restart your computer using a hardware control.
- 2 *Before* Windows starts, press [F8] for the Windows startup menu to appear. (If [F8] doesn't work, instead try pressing and holding [Ctrl] before Windows starts.)
- 3 Select “VGA mode”, then press [Enter].

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## Graphics – Main troubleshooting

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This section addresses possible problems that could prevent you from using your computer.

**Problem Computer doesn't display information or boot after Matrox card is installed**

**Cause** Your Matrox card may not be properly installed.

**Solution** Make sure your Matrox card is properly installed. Specifically, make sure the card is firmly inserted in its expansion slot and that all connections to it are firmly in place. For more information, see “[Hardware installation](#)”, page 2.

**Cause** There may be unsupported graphics hardware in your computer.

**Solution** If an unsupported graphics card is plugged into an expansion slot, remove it.

**Solution** If graphics hardware is built into your computer motherboard, your system may not have automatically disabled it when you inserted your Matrox card. Check your system manual for instructions on how to disable your computer's built-in graphics hardware.

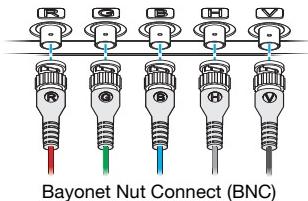
- Cause** Your computer BIOS (Basic Input/Output System) settings may be incorrect.
- Solution** Change your BIOS settings, specifically the *AGP aperture size*. For more information on your computer BIOS, see your system manual.
- Cause** Your computer BIOS may not be up to date. For more information on your computer BIOS, see your system manual.
- Solution** Reinstall your previous graphics card and, if possible, update your computer BIOS. This can usually be done with software from the manufacturer of your computer. Contact your system vendor or manufacturer to get a BIOS update for your computer.
- To get the correct BIOS update, you may need to know the serial number your computer displays when it restarts. (This number is usually in the lower-left corner of the display.)
- Cause** The BIOS of your Matrox graphics card may need to be updated or restored.
- Solution** For advanced users – If you have another VGA-compatible graphics card (PCI), you can try resetting the BIOS of your Matrox graphics card.
- 1 Turn off your computer and insert the other graphics card into an expansion slot. For more information on expansion slots, see [“Choose an expansion slot”, page 3](#).
  - 2 Plug your monitor into the other graphics card and restart your computer.
-  **Note:** Make sure your computer uses the other graphics card to control your primary display. The graphics card that controls your primary display is the one that first displays information when you restart your computer.
- Your computer BIOS (Basic Input/Output System) and the slot type (AGP, PCI, or PCIe – [see “Choose an expansion slot”, page 3](#)) of each graphics card help determine which graphics card controls your primary display.
- To control which graphics card is used for your primary display, you may be able to change the configuration of your computer BIOS. For information on how to change your computer BIOS settings, see your system manual.
- 3 Insert your Matrox installation CD-ROM.
  - 4 Click **Start** → **Run**, type *D:\Sysutils*. You will need to use the **PBIOSWin** program to update the BIOS of your Matrox graphics card. For more information on how to use this program, see the *Readme* file in the *Sysutils* folder.
  - 5 Turn off your computer, remove the other graphics card, then plug your monitor into your Matrox graphics card.
  - 6 Restart your computer.

- Cause** The power supply of your computer may not be powerful enough for all the devices on your computer.
- Solution** **For advanced users** – Remove unnecessary devices from your computer (for example, an unused network card or an extra CD-ROM drive). For more information, see your system manual or the documentation for each device.
- Solution** You may be able to upgrade the power supply of your computer. We recommend a power supply of 300 Watts or more. For more information, contact your computer vendor.

### Problem Wrong color balance, screen image off-center, or no picture at all

- Cause** Your monitor video controls may be improperly set.
- Solution** Adjust your monitor controls (brightness, contrast, and so on). For more information, see your monitor manual.
- Cause** Your monitor may not be properly connected.
- Solution** Make sure you're using the correct connectors (see "Standard (ATX) connection setup", page 6 or "Low-profile connection setup", page 10) and that all connectors are properly fastened.
- Solution** Make sure the monitor power cable is firmly in place.
- Solution** Make sure the connection to the back of the monitor is firmly in place.

If your monitor uses BNC input, make sure the Red (**R**), Green (**G**), Blue (**B**), Horizontal Sync (**HSYNC** – white or gray wire), and Vertical Sync (**VSYNC** – black wire) connections are firmly in place and plugged into the correct input.



- Cause** If your monitor uses BNC input, one or more connection settings may be incorrect.
- Solution** Set each of your monitor RGB input and sync switches (if available) to 75 ohms, with the sync set to "external". These controls are usually switches on the back of your monitor.
- Cause** If display problems occur after the startup screen of your operating system, your software monitor settings may be incorrect.
- Solution** Make sure correct software monitor settings are selected.
- W** If your primary display is still usable, see "Configure your monitor settings", page 12. Otherwise, see the next troubleshooting item.

- Solution** Windows 2000/XP – Make sure you’re not using inappropriate monitor setting customizations:
- 1** Double-click the PowerDesk icon ( ) on your Windows taskbar to access the PowerDesk main interface. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button ( ) on your Windows taskbar.
  - 2** Click **Monitor Adjustments**.
  - 3** Select the appropriate device.
  - 4** Click **Adjust visible area and refresh rate** → **Restore defaults**.

**Problem** **After the startup screen, or after display settings are changed, the screen image is garbled or unusable**  
(blank screen, rolling or overlapping screen images)

**Cause** The Matrox display driver may be trying to use settings your monitor doesn’t support. This can happen if a monitor was never selected in the software and the display resolution was changed to one your monitor doesn’t support, or if the monitor connected to your computer was changed without changing it in the software.



**WARNING:** If incorrect software monitor settings are applied, *some* monitors can be permanently damaged. For more information, see your monitor manual.

**Solution** Windows 2000/XP –



- 1** If your primary display is unusable, restart your computer in VGA mode (see “[Restarting in VGA mode](#)”, page 25).
- 2** Right-click your Windows desktop background, then click **Properties** → **Settings**.
- 3** Move the **Screen area** (Windows 2000) or **Screen resolution** (Windows XP) slider down to its lowest setting, then click **OK**.
- 4** Restart your computer normally.
- 5** Make sure the correct monitor is selected in Windows (see “[Configure your monitor settings](#)”, page 12).
- 6** Restore your original display settings (see steps 2 and 3).

- Cause** Files on your system may have been deleted or corrupted.
- Solution** Remove, then restore Matrox software:
- i **Note:** Before removing software, make sure you have all the necessary files to reinstall software that may still be needed.
- i **Note:** Windows 2000/XP – You may need administrator rights to remove certain software. For more information, see Windows documentation.
- W** Windows 2000/XP –
- 1 If your primary display is unusable, restart your computer in VGA mode (see “[Restarting in VGA mode](#)”, page 25).
  - 2 To remove Matrox software, click **Start** → **Settings** → **Control Panel** → **Add/Remove Programs** (double-click\*) → **Matrox PowerDesk-HF and Driver** → **Change/Remove** → **Yes**. (\* Depending on your version and configuration of Windows, this part of the step may not be necessary.)
  - 3 Restart your computer for the changes to take effect.
  - 4 After your computer has restarted, install the latest display driver for your Matrox card. You may also need to reinstall other Matrox software.

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## Graphics – Extra troubleshooting

The following are extra troubleshooting items related to graphics hardware.

- Problem** **Can't use Windows, Windows reports a configuration error, and/or can't install or uninstall Matrox display driver**
- i **Note:** Windows 2000/XP – You may need administrator rights to install certain software. For more information, see Windows documentation.
- Cause** The problem may be specific to the motherboard in your computer.
- Solution** There may be a software update available for your motherboard. To find out what motherboard model your computer is using, see your system manual. For more information, contact the maker of your motherboard or computer. Many motherboard or computer manufacturers have software updates available on their Web site.

**Cause** Files on your system may have been deleted or corrupted.

**Solution** Remove, then restore Matrox software. For more information, see page 29.

## Problem Monitor settings aren't automatically detected



**WARNING:** If incorrect software monitor settings are used, your display may become unusable and *some* monitors can be permanently damaged. For more information, see your monitor manual.



**Note:** Windows 2000/XP – To check if your monitor settings are properly selected:



- 1 Right-click your Windows desktop background, then click **Properties** → **Settings** → **Advanced** → **Monitor**. If you're using multiple displays in *independent* mode, select a display before clicking **Advanced**.
- 2 If you see the name of your monitor or "Plug-and-Play", your monitor settings are properly selected.  
If you see the wrong monitor name or **Default monitor**, your monitor settings aren't properly selected.

**Cause** Your monitor may not be Plug-and-Play. Most new monitors are Plug-and-Play but many older ones aren't. Software can't automatically detect settings for monitors that aren't Plug-and-Play.

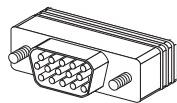
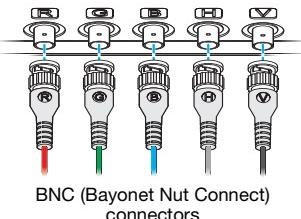
**Solution** Manually select your monitor settings in the software. For more information, see "Configure your monitor settings", page 12.

**Cause** If a monitor was changed or added while Windows was running, the new monitor may not be detected by the software.

**Solution** Restart your computer. If your monitor is a Plug-and-Play (DDC) monitor, it should be automatically detected by the software.

**Cause** You may be using BNC connectors with a Plug-and-Play monitor. The Plug-and-Play feature of a monitor can't be used with BNC connectors.

**Solution** If there's an HD-15 connector at the back of your monitor, use this connector instead of the BNC connectors.



HD-15 connector

**Problem** **W** **After game for Windows 2000/XP starts, monitor doesn't display properly**  
(blank screen, rolling or overlapping screen images)

**Cause** If your game uses a low-resolution (640 × 480 and below), full-screen display mode, your monitor may not support the refresh rate the Matrox driver is using.

**Solution** **1** If the game is still running in full-screen mode and your monitor is unusable, exit the game. To do this, press [Alt]+[Tab] *once*, right-click the name of the game on the Windows taskbar, then click **Close**.  
**2** Make sure the correct monitor is selected in Windows.

**Problem** **3D and video programs don't work**

**Cause** Your computer or program may not work well with bus mastering.

**Solution** Disable bus mastering:  
**W** (If you want to continue using bus mastering, see the other solutions.)

Windows 2000/XP –

- 1** Double-click the PowerDesk icon (■) on your Windows taskbar to access the PowerDesk main interface. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button (⌚) on your Windows taskbar.
- 2** Click **Help** → **Troubleshooting settings**.
- 3** Make sure **Use bus mastering** is disabled.
- 4** Click **OK** or **Apply**. You can now close the PowerDesk main interface.

**Cause** Your computer may not have given an IRQ (interrupt request) to your Matrox graphics card or may have given one used by another device in your computer. This may be because your computer's "Plug-and-Play" feature is turned off.

**W** Windows 2000/XP – To check the display adapter's IRQ:

- 1 Click **Start** → **Settings\*** → **Control Panel** → **Performance and Maintenance\*** → **System** (double-click\*) → **Hardware** → **Device Manager**. (\* Depending on your version and configuration of Windows, this part of the step may not be necessary.)
- 2 Click the plus sign to the left of the **Display adapters**. An "X" through an icon means the hardware has been disabled. A circled exclamation point through the icon means the hardware has a problem.
- 3 Double-click the name of your Matrox display adapter to open a properties dialog box. The type of problem is displayed in the **General** tab → **Device status** area. Check also the **Resources** tab → **Resource type** list for an **Interrupt Request**.

Resource type	Setting
Interrupt Request	11
Memory Range	FFBEC000 - FFBEFFFF
Memory Range	FF000000 - FF7FFFFFF

**Solution** Change settings in your computer BIOS setup utility.

If your computer has the options of enabling Plug-and-Play detection, or assigning an IRQ to a VGA adapter, make sure they're enabled. If your computer doesn't have these options, you may be able to manually assign an IRQ to your graphics card using the BIOS setup utility.

For more information on the BIOS setup utility of your computer, see your system manual or contact your system manufacturer.

**Cause** Your computer's other BIOS settings may be incorrect.

**Solution** Reset your computer BIOS settings to the factory defaults using your computer's built-in BIOS setup utility. The factory defaults are usually the "safest" settings. Check your system manual for more information.

## **Problem** Using multiple displays under Windows 2000/XP, program doesn't work with main graphics card

**W**

**Cause** Your main graphics card may not be controlling your primary display. The graphics card that controls your primary display is the one that first displays information when you restart your computer.

A program that doesn't recognize multiple displays may not work with a graphics card unless it's controlling your primary display.

Your computer BIOS (Basic Input/Output System) and the slot type (AGP, PCI, or PCIe – see “[Choose an expansion slot](#), page 3) of each graphics card help determine which graphics card controls your primary display.

**Solution** If you're having problems with a program that can be moved on your Windows desktop, run this program on your primary display. Make sure the program window doesn't overlap any other display. If the program doesn't work with the graphics card controlling your primary display, or you want your main graphics card to control your primary display, see the other solutions.

**Solution** Change the configuration of your computer BIOS so that the slot type of your main graphics card has priority for becoming the primary display. For information on how to change your computer BIOS settings, see your system manual.

If your computer BIOS doesn't let you select which slot type has priority for becoming the primary display, a BIOS update may be available to let you do this. (The BIOS of most computers can be updated with software.) For a possible BIOS update for your computer, contact your system vendor.

**Solution** If there's a graphics controller built into the motherboard of your computer, by changing your computer BIOS settings, you may be able to change which device controls your primary display. For more information, see your system manual.

**Solution** If you don't need to use the graphics card that's controlling your primary display, remove it from your computer. If your primary display is controlled by the motherboard of your computer, see your system manual for information on how to disable this graphics controller.

**Cause** The program you're using may not work properly with systems using more than one display at a time.

**Solution** An update may be available for the program you're using. This update may fix problems this program has with multi-display systems. For more information, contact the software distributor for the program you're using.

**Solution** If you're using multiple displays in *independent* mode, try using *stretched* mode instead. Programs that don't work in independent mode may work in stretched mode. For more information, see Matrox PowerDesk help.

**Solution**  Windows 2000/XP – For advanced users – To use a program that doesn't support multi-display systems, you can disable all displays other than your primary display:

- 1 Double-click the PowerDesk icon () on your Windows taskbar to access the PowerDesk main interface. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button () on your Windows taskbar.
- 2 Click **Multi-Display Setup**. Make sure you're using **1 display**.
- 3 Click **Start** → **Settings\*** → **Control Panel** → **Performance and Maintenance\*** → **System** (double-click\*) → **Hardware** → **Device Manager**. (\* Depending on your version and configuration of Windows, this part of the step may not be necessary.)
- 4 Click the plus sign to the left of the **Display adapters**.
- 5 For each display adapter, *except* for the one controlling your primary display, right-click the name of a display adapter, then click **Disable** → **Yes**.



**Note:** Your primary display can't be disabled.

- 6 Restart your computer for changes to take effect.



**Note:** To restore display adapters, repeat steps 3–5, but click **Enable** in step 5.

**Problem**  **Not all graphics cards in the computer are fully supported**

(Software doesn't work with a certain graphics card, or another graphics card doesn't work at all)

**Cause** If you have different models of graphics cards in your computer, your Matrox display driver may not support all the graphics cards in your computer.

**Solution** Under Windows 2000/XP, a display driver may support one or more graphics cards. If a display driver doesn't support a certain card, a different display driver must be used for that card. Software that depends on a certain display driver may not work with a graphics card that's not using the same display driver.



**Note:** If your Matrox product was provided by the manufacturer of your computer, check the Web site of that manufacturer for the latest display driver. A display driver provided by the manufacturer of your computer is more likely to be tested with your computer model.

**Solution** If a graphics card isn't supported, you may need to remove it. If there's graphics hardware built into the motherboard of your computer that's not supported by your software, see your system manual for information on how to disable this graphics hardware.

**Cause** Windows 2000/XP – If the Windows method for display driver installation was used (instead of running the setup program included with your Matrox display driver), the driver may not be installed for all the graphics cards it supports.

**Solution** Run the setup program included with the Matrox display driver. The setup program automatically installs the display driver for each Matrox graphics card it supports.

**Problem** **In multi-display mode, displays aren't numbered consecutively**



**Cause** If you have more than one graphics card in your computer, the display numbering may not be consecutive for the displays of a multiple-display card (for example, a DualHead supporting card). Display numbering depends on the types of expansion slots used in your computer (AGP and PCI) and the BIOS settings of your computer.



**Solution** **Windows\* 2000/XP** – Move the displays in Windows.

(\* Only while using multiple displays in “independent” mode. For more information, see PowerDesk help.)

- 1** Right-click your Windows desktop background, then click **Properties** → **Settings**.
- 2** Select a display and move it according to the physical position of the monitor it's associated with.



**Note:** In multi-display mode, you may have limited control over the arrangement of your displays. For more information, see Matrox PowerDesk documentation.

**Problem** **Screen image defects appear, program doesn't run properly, or Windows doesn't work properly**



(example: mouse pointer not drawn properly)

**Cause** Some programs may not work properly with some Matrox acceleration.

**Solution** Disable specific types of software acceleration:

**Windows 2000/XP** –

- 1** Double-click the PowerDesk icon (  ) on your Windows taskbar to access the PowerDesk main interface. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button (  ) on your Windows taskbar.
- 2** Click **Help** → **Troubleshooting settings**.
- 3** Disable one or more features. For more information, see Matrox PowerDesk help.

- 4** Click **OK** or **Apply** for your changes to take effect. (Depending on the feature you disabled, you may have to restart your computer for the changes to take effect.)

**Solution** Disable Windows effects:

Windows 2000 –

- 1** Right-click your Windows desktop background, then click **Properties** → **Effects**.
- 2** Disable one or more features under **Visual effects**.

Windows XP –

- 1** Right-click your Windows desktop background, then click **Properties** → **Appearance** → **Effects**.
- 2** Disable one or more features.

**Solution** If possible, update your Matrox display driver. Matrox makes new display drivers available on the Matrox Web site ([www.matrox.com/mga](http://www.matrox.com/mga)).



**Note:** If your Matrox product was provided by the manufacturer of your computer, check the Web site of that manufacturer for the latest display driver. A display driver provided by the manufacturer of your computer is more likely to be tested with your computer model.

**Solution** Windows 2000/XP – Disable Matrox hardware acceleration:

- 1** Right-click your Windows desktop background, then click **Properties** → **Settings** → **Advanced** → **Troubleshooting**.
- 2** Move the **Hardware acceleration** slider to **None**.
- 3** Click **OK** → **OK** to accept the changes.



**Note:** If you identify a program that doesn't work well with Matrox acceleration, please contact Matrox technical support ([see page 59](#)) and describe the problem. This information may help us come up with a fix or work-around in a future driver release.

## **Problem** Program window or dialog box doesn't appear on screen

**Cause** Another window or dialog box may be covering the window or dialog box you want to see.

**Solution** Move, close, or minimize any window or dialog box that may be covering the window or dialog box you want to see.

**Cause** If you're using multi-display mode, the program window or dialog box may be in a display or on a monitor that's unusable. (For example, your monitor may not be properly connected or configured.)

**Solution** Make sure all the displays and monitors you want to use are usable. For more information, see other troubleshooting items in this guide.

**Cause** The software may be using a display you didn't intend to use or the software may be configured to use more displays than the actual number of monitors you have. (For example, you may be in DualHead Multi-Display mode but you only have one monitor.)

**Solution** Disable the display:



**Windows\*** 2000/XP –

(\* Only while using multiple displays in “independent” mode. For more information, see PowerDesk help.)

- 1** Right-click your Windows desktop background, then click **Properties** → **Settings**.
- 2** Select the display you want to disable, then clear the **Extend my Windows desktop onto this monitor** check box.
- 3** Click **OK** or **Apply** for your changes to take effect.

**Cause** The program window or dialog box may be somewhere off-screen.



**Solution** If the program window you want to see is named on the Windows taskbar, right-click on it and select **Maximize**. (If you click **Restore** the program window goes back to its previous position. To fix this problem, see the other solutions.)

**Solution** Manually move the program window or dialog box:

- 1** Press [Alt]+[Space].
- 2** If you see a pop-up menu, click **Move**. If you don't see a pop-up menu, press [M] (for **Move**).
- 3** Press on one of the arrow keys once and move your mouse pointer to where you want the window or dialog box to appear, then click. The program window or dialog box should appear where you clicked.

**Solution** **Windows 2000/XP –**

- 1** Double-click the PowerDesk icon ( m) on your Windows taskbar to access the PowerDesk main interface. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button ( ) on your Windows taskbar.
- 2** Click **Desktop Management**.

**3** Enable one or more of the following features:

- **Open program windows**
- **Maximize windows**
- **Center dialog boxes and message boxes**

**4** Choose where you want the program window or dialog box to appear.

For more information, see Matrox PowerDesk help.

## **Problem    Display on digital monitor appears blurry or uses only a portion of the screen**

**Cause** You may be using a lower display resolution than what your digital monitor supports. If your monitor supports display scaling, the image on your screen may appear blurry. If display scaling isn't supported, the display may use only a portion of your screen.

**Solution** Select the highest display resolution available. This generally results in better image quality. (While using 2 digital monitors at the same time, certain limitations may apply. For more information, [see page 46](#).)

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## **Video**

The following troubleshooting items address problems related to video files.

## **Problem    Video file playback is jerky (skipping frames)**



**Note:** Jerky video file playback may be the result of slow playback or recording. Slow recording causes frames to be dropped (frames aren't recorded). If jerky video is caused by frames that were dropped during recording or by the video settings such as the encoding method, the problem can only be fixed by recapturing the video under better conditions or with different video settings.

**Cause** Your hard disk may be too slow.

**Solution** Try *defragmenting* your hard disk. To defragment a hard disk:



Windows 2000/XP – Click **Start** → **Programs** → **Accessories** → **System Tools** → **Disk Defragmenter**.

**Solution** If possible, try using a faster disk.



**Tip:** If your computer has more than one hard disk, you may get better results if you play back video files from a disk *other than* the one where the Windows swap file is stored. The Windows swap file is usually stored on drive "C:".

**Solution** Make sure the drive you're using (a hard disk or DVD drive) is using DMA (if your drive supports DMA transfers). To use DMA:



**WARNING:** Not all drives support DMA well. For more information, see the documentation that came with your hard disk.

Windows 2000/XP –

- 1 Click **Start** → **Settings\*** → **Control Panel** → **Performance and Maintenance\*** → **System** (double-click\*) → **Hardware** → **Device Manager**. (\* Depending on your version and configuration of Windows, this part of the step may not be necessary.)
- 2 Double-click the **IDE ATA/ATAPI controllers** list item to expand it, then double-click the name of the appropriate controller.
- 3 Change each **Transfer Mode** setting to "**DMA if available**".
- 4 Click **OK** to accept the changes.

**Cause** Too many programs may be running (using up computer resources).

**Solution** Close other programs, including memory-resident programs like **System Agent**.

**Cause** Your Matrox graphics card may be sharing an IRQ (interrupt request) with another PCI card in your computer (for example, a network card).

**Solution** Try moving the PCI card to another PCI slot in your computer. For more information, see the documentation for this card or see your system manual.

## **Problem** **Mouse pointer flickers or disappears when it's over a video window**

**Cause** You may be using a customized mouse pointer. Windows draws customized mouse pointers in a way that may cause them to flicker or disappear while they're over a video window.

**Solution** Windows 2000/XP – Use default Windows mouse pointers:



- 1 Click **Start** → **Settings\*** → **Control Panel** → **Printers and Other Hardware\*** → **Mouse** (double-click\*). (\* Depending on your version and configuration of Windows, this part of the step may not be necessary.)

- 
- 2** Click the **Pointers** tab.
  - 3** In the **Scheme** box, select (or reselect) “**(None)**”, then click **OK**.

---

## DVD

The following troubleshooting items address problems related to DVD. (For general video-related troubleshooting items, see “Video”, page 38.)

### Problem DVD video playback is jerky (skipping frames)

**Cause** Your DVD drive may be too slow.

**Solution** If your DVD drive supports DMA transfers, enable this feature (see page 39).

### Problem Can't play certain DVD videos

**Cause** A DVD video may not play back because the region setting on your DVD player doesn't match the region code on the DVD-ROM disc. DVD players and videos use region codes to prevent the playback of video that was intended only for a certain region or market.

**Solution** To get a copy of a DVD video that's compatible with the region code of your DVD player, contact the vendor of that video.

### Problem Can't record DVD video

See “Can't record video with a video recorder”, page 42.

---

## TV output

The following troubleshooting items are related to TV output support (see “TV output”, page 14).

### Problem TV image is garbled or unusable. (blank screen, rolling or overlapping screen images)

**Cause** Your TV or video recorder may not be properly connected.

**Solution** Make sure your TV or video recorder is properly connected. For more information, see “Standard (ATX) connection setup”, page 6.

- Cause** Your TV or video recorder may not be properly set up.
- Solution** If a TV is connected to your Matrox graphics card and the TV has a **TV/VIDEO** switch, set it to **VIDEO**. For more information, see your TV manual.
- Solution** If a video recorder is connected to your Matrox graphics card and the video recorder has a **TUNER/LINE** switch, set it to **LINE**. For more information, see your video recorder manual.
- Cause** Matrox software may not be set up for TV output. Particularly, the TV standard selected may not be correct.
- Solution** Windows 2000/XP – See “Software setup”, page 17.
- Cause** TV output isn’t supported with full-screen DOS display modes (for example, the information you see before Windows starts) or with standard VGA mode (for example, when you restart Windows in “safe mode”). Older programs may use these display modes. While one of these display modes is in use, your TV displays nothing (black).
- Solution** View the program you’re using with your computer monitor instead of your TV.

## Problem Computer text is hard to read with a TV

- Cause** The resolution of a TV is lower than a typical computer display. As a result, some text may be harder to read with a TV than with a computer monitor.
- Solution** Lower your computer display resolution:
- W** Windows 2000/XP –
- 1 Right-click your Windows desktop background, then click **Properties** → **Settings**.
  - 2 Move the **Screen area** (Windows 2000) or **Screen resolution** (Windows XP) slider to a lower setting.
  - 3 Click **OK** to close the dialog box and apply changes.
- Solution** If you’re using a display area larger than  $640 \times 480$ , you can use larger system fonts to make some text more readable:
- W** Windows 2000/XP –
- 1 Right-click your Windows desktop background, then click **Properties** → **Settings** → **Advanced** → **General**.
  - 2 Under **Font size**, select **Large Fonts**.
  - 3 Click **OK** to close the dialog box and apply changes.

## **Problem Poor TV or video recorder image quality**

**Cause** Your software TV settings may need adjusting.

**Solution** See “Software setup”, page 17.

**Cause** There may be too many video devices between your video source and destination, or one or more of the video devices may be degrading the quality of the video signal. Demodulators, long cables, cable extensions and improper connections can all affect video signal quality.

**Solution** If your video equipment supports it, use S-video connections. For more information, see “Connection setup”, page 14.

**Solution** Try changing one or more video devices.

**Solution** If possible, use fewer connections. For example, don't use cable extensions.

**Cause** The image settings on your TV may need adjusting.

**Solution** Some TVs have an aperture control sometimes called **PICTURE**. Lowering this setting may reduce this problem. Reducing your TV's brightness setting may also improve image quality. For more information, see your TV manual.

## **Problem Can't record video with a video recorder**

**Cause** The video source may be copy protected. Your Matrox product may not let you make copies of copy-protected video. (Some video sources let you make a copy of a video, but you may not be able to make a copy of that copy.)

**Solution** To get copies of a copy-protected video, contact the vendor of the video.

## **Problem Video appears stretched or squished on a TV**

**Cause** Windows 2000/XP – If you're using the *PureVideo/DVDMax* feature to view video full-screen on your TV, the aspect ratio of a video may not match the aspect ratio of your TV.

**Solution** Adjust software settings:

- 1** Double-click the PowerDesk icon ( ) on your Windows taskbar to access the PowerDesk main interface. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button ( ) on your Windows taskbar.
- 2** Click **Video Playback Settings** → **PureVideo/DVDMax settings**.
- 3** Select **Preserve aspect ratio**.
- 4** Select **Detect video aspect ratio based on** → **Video window**.

**5** Select the aspect ratio of your TV (4:3 or 16:9 – most TVs are 4:3).

**6** Click **OK** or **Apply** for your changes to take effect.

For more information, see context-sensitive help.

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## Stereo output

The following troubleshooting items address problems related to stereo output support.

### Problem Stereo image is choppy

**Cause** Your refresh rate may be too low.

**Solution** Make sure the vertical refresh rate of your monitor is set to at least 85 Hz. Stereo image quality is usually better at higher refresh rates.

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## Sound

The following troubleshooting items address problems related to sound cards.

### Problem Sound doesn't record, video files play back with no sound, or sound output is distorted or too loud

**Cause** If the sound problem is with a particular device (for example, TV or speaker), the volume control on the device itself may need adjusting.

**Solution** Adjust the volume control on the device itself.

**Cause** Audio cables may be loose or incorrectly wired.

**Solution** Make sure your sound card cables are properly connected (see “Connect audio output”, page 16).

**Cause** Your sound card's Windows software settings may be incorrect. Specifically, input or output may be disabled, or volume levels may be too low or too high.

**Solution** **W**indows 2000/XP – Make sure your sound card's Windows software settings are correct.

- 1 Double-click the speaker icon (or ) on the Windows taskbar.

If you *don't* see the speaker icon:

Windows 2000 –

- a Click **Start** → **Settings** → **Control Panel**.
- b Double-click the **Multimedia** or **Sounds and Multimedia** icon.
- c Enable “**Show volume control on the taskbar**”.
- d Click **OK**.
- e Double-click the speaker icon on the taskbar.

Windows XP –

- a Click **Start** → **Settings\*** → **Control Panel** → **Sound, Speech, and Audio Devices\*** → **Sounds and Audio Devices** (double-click\*). (\* Depending on your configuration of Windows, this part of the step may not be necessary.)
- b Enable “**Place volume icon in the taskbar**”.
- c Click **OK**.
- d Double-click the speaker icon on the taskbar.

- 2 Click **Options** → **Properties**.

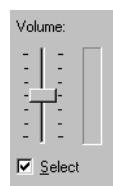
- 3 Click the **Recording** button, enable all check boxes in the list box, then click **OK**.

- 4 For the **Line In** and/or **Microphone** controls, make sure the **Volume** slider levels are okay (if you're not sure, try half level), and the appropriate **Select** check box is enabled.

- 5 Click **Options** → **Properties**.

- 6 Click the **Playback** button, enable all check boxes in the list box, then click **OK**.

- 7 For the **Master**, **Line**, **Aux**, and/or **Wave** controls, make sure the **Volume** sliders are at one-quarter to one-half levels (if you're not sure, try half level), and the **Mute** check boxes are cleared.



- 8 Close the dialog box.



**Note:** Depending on your sound driver, certain labels may be different. For example, **Line In** may be labeled **Line**.

**Cause** The problem may be specific to the sound card you have.

**Solution** For more information, see your sound card manual.

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## More Information

We provide additional information in help and *Readme* files. Be sure to check for any last-minute release notes included with your product and in the Matrox CD-ROM *Readme* file. Also, check the Matrox Web site ([www.matrox.com/mga](http://www.matrox.com/mga)) for the latest Matrox software, technical support, and product information. This guide is available on the CD-ROM as an Adobe Acrobat file (*Guide\Guide.pdf*).

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# Display information

- Your Matrox graphics card is 100% VGA compatible and supports all VESA standards: VBE 2.0 (Super VGA modes), DPMS (energy saving), and DDC-2B (Plug-and-Play monitor).
- Your Matrox product supports DualHead features. *DualHead* features control 2 displays at a time.
- Matrox Parhelia and Matrox Millennium P750 products support TripleHead features. *TripleHead* features control 3 displays at a time.
- To get the most of your Matrox product, we recommend using the highest color palette setting (a 32-bit color palette) for all your displays.
- 3D acceleration is only available with a 16- or 32-bit color palette.
- The display resolutions and refresh rates available depend on your Matrox graphics card, display driver, software monitor settings, and monitor. For information on the capabilities of your monitor, see your monitor documentation.
- While using 1 or 2 displays at a time, your Matrox graphics card supports display resolutions up to  $2048 \times 1536$ .
- Your Matrox graphics card supports the highest refresh rates supported by most monitors. At the highest display resolution ( $2048 \times 1536$ ), your Matrox graphics card supports a vertical refresh rate of up to 85 Hz.
- While using 2 displays at a time, each monitor has its own monitor settings (refresh rates).
- While using 2 displays at a time *both* at the highest display resolution ( $2048 \times 1536$ ), certain display limitations may apply. (For example, video playback may be limited.)
- While using 3 displays at a time (TripleHead), all 3 displays use the same display resolution, color palette, and refresh rates, and the highest display resolution available is  $1280 \times 1024$  (that is,  $3840 \times 1024$  for all 3 displays).
- The highest display resolution supported for digital monitors is  $1920 \times 1200$ .
- **Matrox Parhelia** – If you’re using two digital monitors at the same time, your Matrox hardware uses the same display resolution for both your monitors. If you select different resolutions for your displays, one of your displays may use only a portion of the screen (the rest of the screen will be black). To avoid having only a portion of the screen used, we recommend you select the highest display resolution available. The highest display resolution available is the highest resolution supported by both monitors. If one of your monitors supports a higher resolution, it may use display scaling to fill the entire screen. For more information on what your monitors support, see their documentation.

- If you're using BNC connectors with a Plug-and-Play monitor, the Plug-and-Play feature of your monitor can't be used. To use the Plug-and-Play feature of your monitor, instead of the BNC connectors, use the 15-pin connector at the back of your monitor.

### **Supported VESA modes (main display)**

In the table below, VESA modes supported by your Matrox graphics card are indicated by a VESA mode number. Many Super VGA DOS programs use VESA modes.

<b>Display resolution</b>	<b>16 colors</b>	<b>256 colors</b>	<b>32 K colors</b>	<b>64 K colors</b>	<b>16 M colors</b>
640 × 400	—	100	—	—	—
640 × 480	(VGA)	101	110	111	112
800 × 600	102	103	113	114	115
1024 × 768	—	105	116	117	118
1280 × 1024	—	107	119	11A	11B
1600 × 1200	—	11C	11D	11E	11F
<b>Columns</b>	<b>Rows</b>				
<b>80</b>	—	—	—	—	108
<b>132</b>	109	10A	10B	10C	

# Hardware information

## Features

	Matrox Parhelia	Matrox Millennium P750	Matrox Millennium P650	Matrox Millennium P650 Low-profile PCI	Matrox Millennium P650 PCIe
<b>DualHead</b>	✓	✓	✓	✓	✓
<b>TripleHead</b>	✓	✓	✓ *	—	—
<b>TV output</b>	✓	✓	✓ †	✓ †	—
<b>Stereo output</b>	✓	—	—	—	—
<b>Video input</b>	✓ ‡	—	—	—	—
<b>Display rotation</b>	—	—	—	—	✓
<b>Main RAMDAC</b>	400 MHz	400 MHz	400 MHz	400 MHz	400 MHz
<b>Secondary RAMDAC</b>	400 MHz	400 MHz	400 MHz	400 MHz	400 MHz
<b>Memory</b>	128 MB or 256 MB	64 MB	64 MB	64 MB	128 MB
<b>Memory type</b>	DDR (Double Data Rate) SDRAM	DDR (Double Data Rate) SDRAM			
<b>Card type</b>	AGP 4x, 8x compatible PCI	AGP 2x, 4x, 8x compatible	AGP 2x, 4x, 8x compatible	PCI	PCIe x16
<b>Form factor</b>	ATX	ATX	ATX	Low-profile	ATX

\* TripleHead upgrade kit available (see <http://shopmatrox.com>).

† TV output adapter sold separately (see <http://shopmatrox.com>).

‡ Supported only with Matrox Parhelia 256 MB PCI. Video input adapter sold separately (see <http://shopmatrox.com>).

## **Environmental specifications**

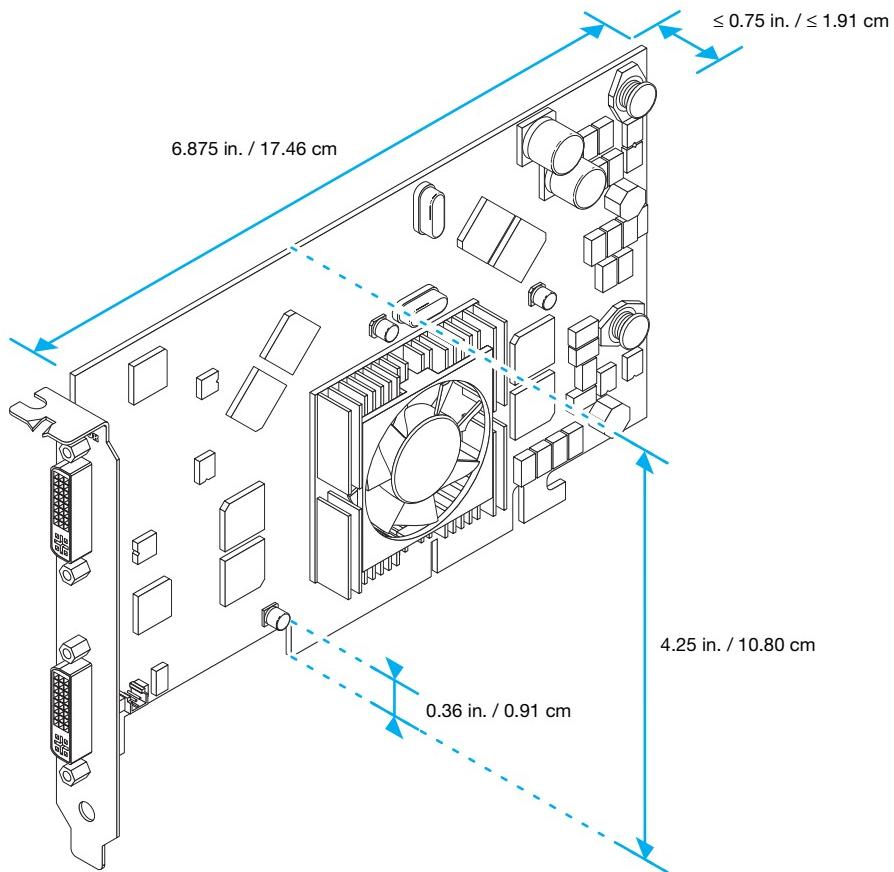
- Minimum/maximum ambient operating temperatures: 0 to 55 °C
- Minimum/maximum storage temperature: -40 to 75 °C
- Maximum altitude for operation: 3,000 meters
- Maximum altitude for transport: 12,000 meters
- Operating humidity: 20 to 80% relative humidity (non-condensing)
- Storage humidity: 5 to 95% relative humidity (non-condensing)

## **Digital monitor information**

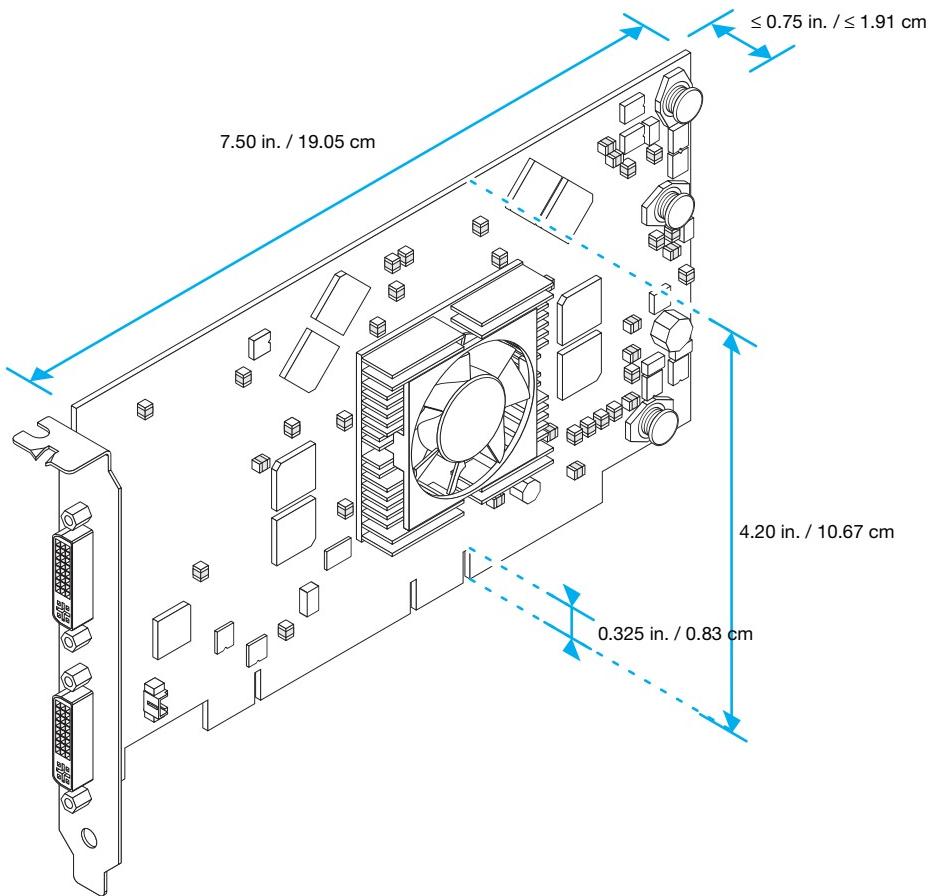
- TMDS (Transition Minimized Differential Signaling) encoding based on the Silicon Image PanelLink standard \*
- DDWG (Digital Display Working Group) compliant DVI connector
- EDID (Extended Display Identification Data) 1.2, 1.3 (without the extended data block), and 2.0 support

\* While using 2 digital monitors at the same time, certain limitations may apply. For more information, [see page 46](#).

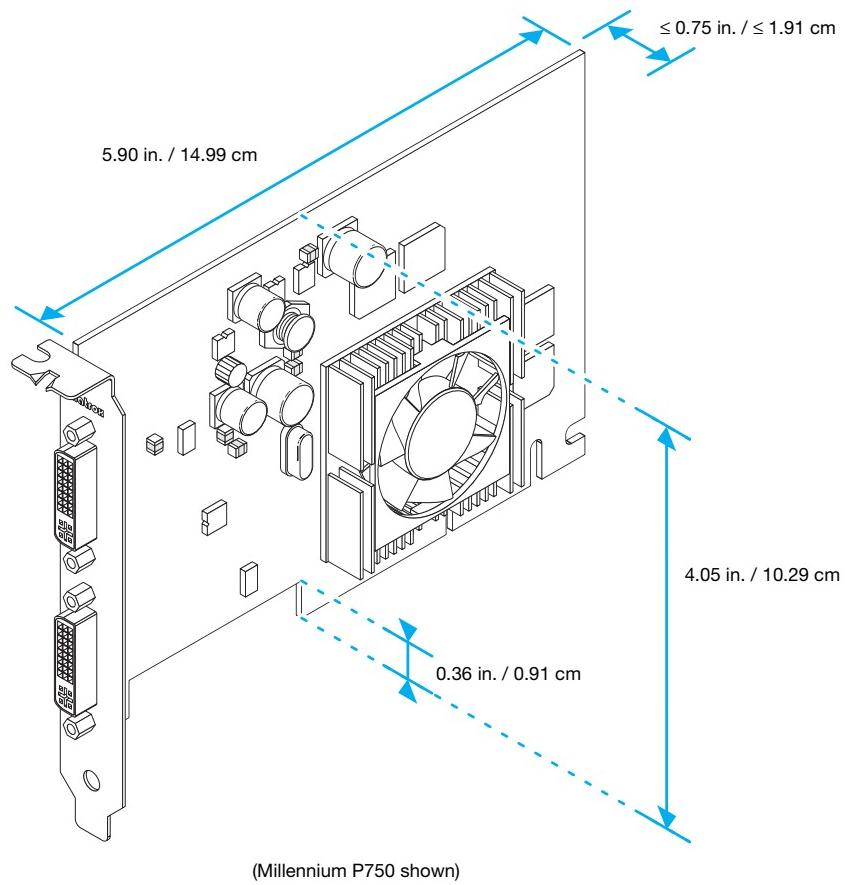
## Maximum card dimensions – Matrox Parhelia (AGP)



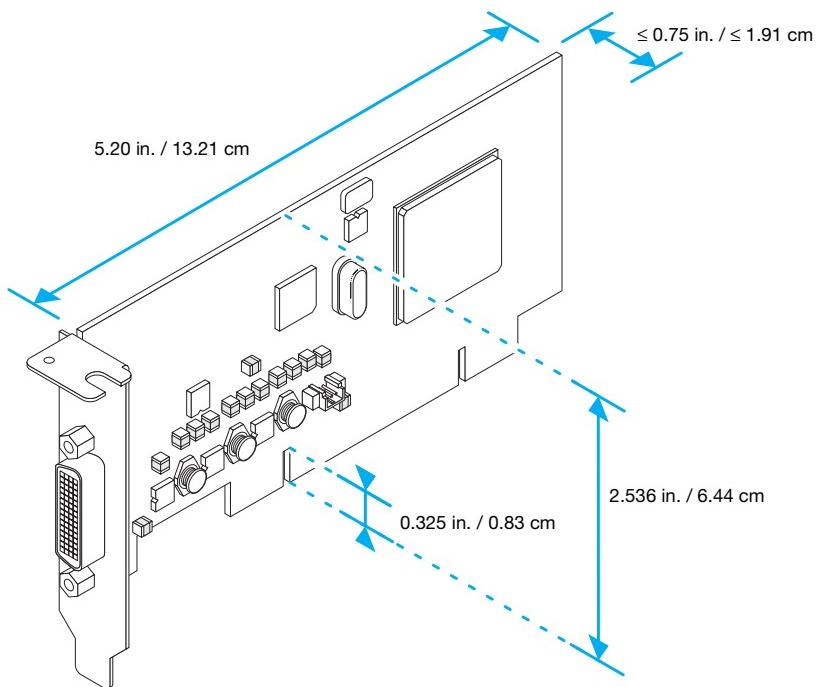
## Maximum card dimensions – Matrox Parhelia (PCI)



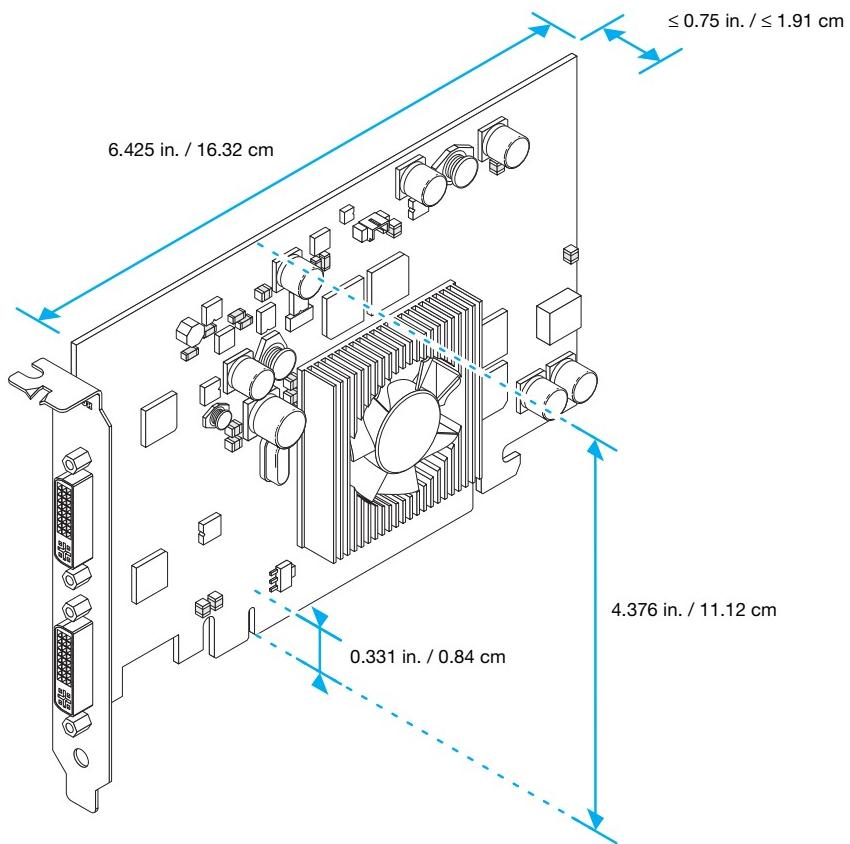
## Maximum card dimensions – Matrox Millennium P750 or P650 (AGP)



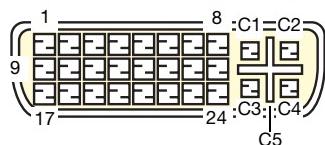
## Maximum card dimensions – Matrox Millennium P650 Low-profile PCI



## Maximum card dimensions – Matrox Millennium P650 PCIe



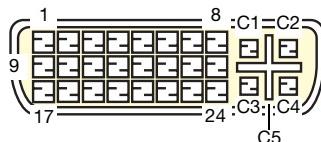
## Pin usage for a digital (DVI-I) connector



Pin	Signal	Pin	Signal	Pin	Signal
1	TMDS data 2-	9	TMDS data 1-	17	TMDS data 0-
2	TMDS data 2+	10	TMDS data 1+	18	TMDS data 0+
3	TMDS data 2/4 shield	11	TMDS data 1/3 shield	19	TMDS data 0/5 shield
4	TMDS data 4-	12	TMDS data 3-	20	TMDS data 5-
5	TMDS data 4+	13	TMDS data 3+ (3D-sync-out*)	21	TMDS data 5+
6	DDC clock	14	+5 V power*	22	TMDS clock shield
7	DDC data	15	Ground (for +5 V, HSync, & VSync)	23	TMDS clock+
8	Analog vertical sync	16	Hot plug detection	24	TMDS clock-
C1	Analog red	C3	Analog blue	C5	Analog ground (Analog R, G, & B return)
C2	Analog green	C4	Analog horizontal sync		

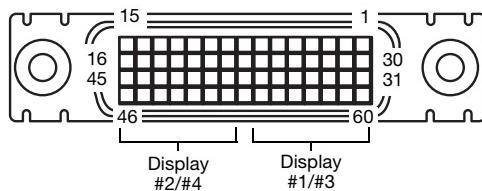
\* Used with the stereo-output adapter.

## Pin usage with an analog dual-monitor adapter (DVI-I to HD-15)



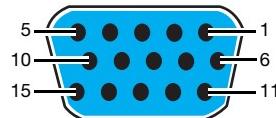
Pin	Signal	Pin	Signal	Pin	Signal
1	TMDS data 2-	9	TMDS data 1-	17	TMDS data 0-
2	TMDS data 2+	10	TMDS data 1+	18	TMDS data 0+
3	TMDS data 2/4 shield	11	TMDS data 1/3 shield	19	TMDS data 0/5 shield
4	Analog red (2)	12	TMDS data 3-	20	Analog blue (2)
5	Analog horizontal sync (2)	13	TMDS data 3+	21	DDC Clock (2)
6	DDC clock (1)	14	+5 V power	22	TMDS clock shield
7	DDC data (1)	15	Ground (for +5 V, Hsync, & VSync)	23	TMDS clock+
8	Analog vertical sync (1)	16	Hot plug detection	24	TMDS clock-
C1	Analog red (1)	C3	Analog blue (1)	C5	Analog ground (Analog R, G, & B return) (1)
C2	Analog green (1)	C4	Analog horizontal sync (1)		

## Pin usage for a graphics card connector (LFH-60) – (Low-profile card only)



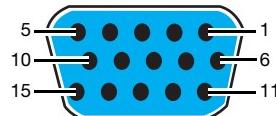
	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>	<b>Pin</b>	<b>Signal</b>
<b>Display #1/#3</b>	1 Ground	24	—	31	TMDS data1+	54	Ground
	2 Analog red output	25	—	32	TMDS data1-	55	VSYNC
	3 Analog blue output	26	—	33	TMDS clock data+	56	H SYNC
	4 Ground	27	TMDS data2-	34	TMDS clock data-	57	Ground
	5 5V Power	28	TMDS data2+	35	—	58	—
	6 SCL (DDC)	29	TMDS data0-	36	Hot plug detection	59	Analog green output
	7 SDA (DDC)	30	TMDS data0+	37	—	60	Ground
	8 —	23	—	38	—	53	—
<b>Display #2/#4</b>	9 SDA (DDC)	16	TMDS data0+	39	—	46	Ground
	10 SCL (DDC)	17	TMDS data0-	40	Hot plug detection	47	Analog green output
	11 5V Power	18	TMDS data2+	41	—	48	—
	12 Ground	19	TMDS data2-	42	TMDS clock data-	49	Ground
	13 Analog blue output	20	—	43	TMDS clock data+	50	H SYNC
	14 Analog red output	21	—	44	TMDS data1-	51	VSYNC
	15 Ground	22	—	45	TMDS data1+	52	Ground

## Pinouts for analog (HD-15) connector



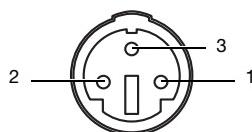
Pin	Signal	Pin	Signal	Pin	Signal
1	Analog red output	6	Ground	11	—
2	Analog green output	7	Ground	12	SDA (DDC)
3	Analog blue output	8	Ground	13	TTL horizontal sync
4	—	9	+5 V (DDC)	14	TTL vertical sync
5	Ground	10	Ground	15	SCL (DDC)

## Pin usage with Matrox TV output adapter



Pin	Signal	Pin	Signal	Pin	Signal
1	Composite video	6	Ground	11	—
2	Y (S-video)	7	Ground	12	Shorted with 15 by adapter
3	C (S-video)	8	Ground	13	—
4	—	9	—	14	—
5	Ground	10	Ground	15	Shorted with 12 by adapter

## Pin usage for a stereo-output connector (mini DIN, 3 pins)



Pin	Signal
1	Ground
2	+5 V power
3	3D-sync-out



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# Customer support

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## Matrox Web and FTP sites

Matrox is on the Internet with a World Wide Web (WWW) and File Transfer Protocol (FTP) site. Our Web site has product literature, press releases, technical material, a sales office list, trade show information, and other relevant material. Our FTP site contains current drivers for Matrox products. You can download drivers using the Internet FTP site. You can access our FTP server independently, or from the Matrox Web site.

Our address for Matrox Graphics Inc. is:

WWW – [www.matrox.com/mga/](http://www.matrox.com/mga/)

FTP – [ftp.matrox.com/pub/mga/](http://ftp.matrox.com/pub/mga/)

Send questions or comments regarding the site to:

e-mail – [webmaster@matrox.com](mailto:webmaster@matrox.com)

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## If you have a problem

If you have a problem, we recommend that you follow the procedure below for the quickest results.

- 1 Contact your dealer** – This is usually the quickest and most effective method of technical assistance. Your dealer is local and may be familiar with your complete system. In the case of hardware warranty assistance, the product must be returned to the dealer, who will return it to Matrox.
- 2** If your Matrox product was provided by your computer manufacturer, contact this manufacturer. For contact information, see your computer documentation or contact the vendor.
- 3 Direct Matrox technical support** – If you still can't resolve a problem (and your Matrox product wasn't provided by your computer manufacturer), you can get direct technical assistance this way:
  - Visit our technical support Web site at [www.matrox.com/mga/support/tech\\_support/home.cfm](http://www.matrox.com/mga/support/tech_support/home.cfm).
  - Visit our technical support forum at [www.matrox.com/mga/support/forum/agree.cfm](http://www.matrox.com/mga/support/forum/agree.cfm).
  - See our FAQs (Frequently Asked Questions) at <http://forum.matrox.com/mga/>.

- Write a letter to Graphics Customer Support at our Corporate Headquarters. The address is: Matrox Graphics Inc., 1055 Saint Regis Boulevard, Dorval, QC, Canada, H9P 2T4.

## Information we need

Please give a complete description of the problem, and include:

- Matrox card serial number, model number, revision number, BIOS number, driver type and version, and memory address at which the Matrox card is installed.
- Computer brand name, system BIOS manufacturer and version number or date, bus type, model, processor speed, and amount of memory.
- Monitor brand and model name.
- Operating system and version.
- If you're using a memory manager, its brand and version. Also, list any memory-resident programs in use.
- If you're using a network card, its brand and version.
- Brand and model of any other cards and devices installed on your system.

## Program specific problems

If a problem appears with a specific program, please give us the following information:

- Display settings (color palette, display resolution, and so on) applied when the problem occurs.
- Program name and version. Name any add-on packages you're using.
- If possible, take note of the file and segment address that caused the problem.
- Detailed steps known to cause the bug, so we can reproduce it.



## Where to get information



For display information:

Windows 2000/XP –

- 1 Double-click the PowerDesk icon (  ) on your Windows taskbar to access the PowerDesk main interface. To see the PowerDesk icon in Windows XP, you may need to click the **Show hidden icons** button (  ) on your Windows taskbar.
- 2 Click **Information**.

For system information:

- Windows 2000 – Right-click the **My Computer** icon on your Windows desktop background, then click **Properties**.
- Windows 2000/XP – Click **Start** → **Programs** → **Accessories** → **System Tools** → **System Information**.
- Windows XP – Click **Start** → **Settings\*** → **Control Panel** → **Performance and Maintenance\*** → **System** (double-click\*). (\* Depending on your configuration of Windows, this part of the step may not be necessary.)

# **Warranty**

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1. Verify that your Matrox product was installed and configured according to the information in its accompanying documentation.
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## Declaration of conformity of a Class B digital device according to the FCC rules

**We, the Responsible Party** Matrox, 625 State Route 3, Unit B, Plattsburg, NY 12901 • Telephone: (514) 822-6000 (extension 2026) • Attention: Conformity Group Matrox

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**Anmerkung für die Matrox Hardware-Produktunterstützung durch dieses Handbuch** Diese Geräte entsprechen EC Direktive 89/336/EEC für ein digitales Gerät Klasse B. Sie wurden getestet und entsprechen demnach EN55022/CISPR22 und EN55024/CISPR24. In einer Wohnumgebung können diese Produkte Funkinterferenzen erzeugen, und der Benutzer kann genötigt sein, entsprechende Maßnahmen zu ergreifen. Um EG-Anforderungen zu entsprechen, müssen zum Anschließen des Monitors und anderer Peripheriegeräte an die Karte abgeschirmte Kabel verwendet werden. Diese Produkt wurden in einem typischen, der Klasse B entsprechenden, Host-System getestet. Es wird davon ausgegangen, daß diese Produkte auch in jedem Klasse B entsprechenden System entsprechend funktionieren.

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**Avertissement sur l'épilepsie**

**À lire avant toute utilisation d'un jeu vidéo par vous-même ou votre enfant** Certaines personnes sont susceptibles de faire des crises d'épilepsie ou d'avoir des pertes de conscience à la vue de certains types de lumières clignotantes ou d'éléments fréquents dans notre environnement quotidien. Ces personnes s'exposent à des crises lorsqu'elles regardent certaines images télévisées ou qu'elles jouent à certains jeux vidéo. Ces phénomènes peuvent apparaître alors même que le sujet n'a pas d'antécédent médical ou n'a jamais été confronté à une crise d'épilepsie.

Si vous-même ou un membre de votre famille avez déjà présenté des symptômes liés à l'épilepsie (crise ou perte de conscience) en présence de stimulations lumineuses, veuillez consulter votre médecin avant toute utilisation.

Nous conseillons aux parents d'être attentifs à leurs enfants lorsqu'ils jouent avec des jeux vidéo. Si vous-même ou votre enfant présentez un des symptômes suivants: vertige, trouble de la vision, contraction des yeux ou des muscles, perte de conscience, trouble de l'orientation, mouvement involontaire ou convulsion, veuillez immédiatement cesser de jouer et consultez un médecin.

**Précautions à prendre dans tous les cas pour l'utilisation d'un jeu vidéo** • Ne vous tenez pas trop près de l'écran. • Jouez à bonne distance de l'écran de TV et aussi loin que le permet le cordon de raccordement. • Utilisez de préférence les jeux de vidéo sur un écran de petite taille. • Évitez de jouer si vous êtes fatigué ou si vous manquez de sommeil. • Assurez-vous que vous jouez dans une pièce bien éclairée. • En cours d'utilisation, faites des pauses de dix à quinze minutes toutes les heures.

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